

REMARKS

I. INTRODUCTION

The specification has been amended above to reference certain elements shown in Figs. 1 and 2, as requested by the Examiner. Claims 1, 2, 4, 5, 8-10, 12-14, 18-24, 26-30, 32, 33, 37, 38 and 40-42 have been amended above merely to remove minor informalities therefrom, and not for any reason relating to patentability thereof. Claims 1-42 are under consideration in the above-referenced application. Provided above, please find a claim listing indicating the current amendment to the previously-pending claims on separate sheets so as to comply with the requirements set forth in 37 C.F.R. § 1.121. It is respectfully submitted that no new matter has been added.

II. OBJECTIONS TO THE DRAWINGS AND CLAIMS SHOULD BE WITHDRAWN

In the Office Action, the Examiner objected to the drawings as including certain references (numerals 10 and 20 shown in Fig. 1, and reference numerals 40, 60 and 65 shown in Fig. 2) which have not been mentioned in the originally-filed specification of the above-referenced application. In addition, the Examiner objected to claims 13, 27 and 41 due to minor informalities.

As the Examiner shall ascertain, the specification has been amended above to include the above-identified reference numerals. Further, claims 13, 27 and 41 have been amended above to recite the language requested by the Examiner. Accordingly, the objections to the drawings and claims 13, 27 and 41 are now moot, and should therefore be withdrawn.

III. REJECTIONS UNDER 35 U.S.C. §§ 102 AND 103(a) SHOULD BE WITHDRAWN

Claims 1-4, 6-18, 20-32 and 34-42 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,767,659 issued to Farley (the “Farley Patent”). Claims 5, 19 and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Farley Patent, in view of U.S. Patent No. 5,889,385 issued to Podrazhanzky et al. (the “Podrazhanzky Patent”). Claims 14, 28 and 42 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Farley Patent, in view of U.S. Patent No. 6,188,202 issued to Yagi (the “Yagi Patent”). Applicant respectfully submits that the Farley Patent, taken alone or in combination with either the Podrazhanzky Patent or the Yagi Patent, do not teach, suggest or disclose the subject matter recited in independent claims 1, 15 and 29, and the claims which depend therefrom. Thus, it is respectfully requested that the 35 U.S.C. §§ 102 and 103(a) rejections of these claims be withdrawn for at least the reasons set forth herein below.

In order for a claim to be rejected as anticipated under 35 U.S.C. § 102(b), each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. Manual of Patent Examining Procedures, §2131; *also see Lindeman Machinenfabrik v. Am Hoist and Derrick*, 730 F.2d 1452, 1458 (Fed. Cir. 1984).

In order for a claim to be rejected for obviousness under 35 U.S.C. § 103, not only must the prior art teach or suggest each element of the claim, the prior art must also suggest combining the elements in the manner contemplated by the claim. *See Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 934 (Fed. Cir.), *cert. denied* 111 S.Ct. 296 (1990); *see In re Bond*, 910 F.2d 831, 834 (Fed. Cir. 1990). “It is improper to use the inventor’s disclosure as a road map for selecting and combining prior art disclosures.” *See Grain Processing Corp. v. American*

Maize-Products Corp., 840 F.2d 902, 907 (Fed. Cir. 1988). "[T]he reference must be viewed without the benefit of hindsight afforded to the disclosure." *In re Paulsen*, 30 F.3d 1475, 1482 (Fed.Cir. 1994). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant' s disclosure. See *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991).

The Farley Patent relates to a battery pack including a component in which predetermined battery parameters definitive of a battery pack characteristic may be stored, together with a battery parameter sensor. A micro-controller responsive to the sensing of a battery parameter is provided for controlling the battery pack characteristic based upon the sensed parameter. (See Farley Patent, Abstract). The sensed parameter may be an indication of a substantially full charge as provided by a current source operably connected to the battery pack, and subject to being disconnected when a predetermined cell temperature is reached which is indicative of full charge. (See *id.*, Abstract).

In particular, the arrangement of the Farley Patent uses a processor that monitors cell temperature with time. For example, temperature measurements are logged at intervals such as each 5-10 seconds, and when a profile which matches a stored profile indicative of substantially full charge is identified, the transistor may be switched to shunt the charging current. The battery pack temperature may then rise due to the heat dissipated in a resistor R enabling the simple full charge detection by temperature of the battery charger to operate to end or shut-off the fast charge current in appropriate charger types. The processor of the Farley Patent may be arranged such that this overcharge protection occurs only when the temperature rise is due to the charging current (i.e. flow into the cells). (See *id.*, col. 5, lns. 35-51; and col. 19, lns. 50-60).

As shown in Fig. 8b of the Farley Patent, the cell temperature is read and stored so that a profile of cell temperature with time may be built up. If the cell temperature is within the range (step 89) for which fast charging is appropriate, then the cell temperature profile established to date is examined to see if the profile is equivalent to that of a full charged cell array (step 800). If not, after a pause of 1 minute and assuming the timer which has set the fast charging time limit before current shunting is to be applied has not expired (801), control loops back to a point label (a) where a portion of the aforesaid control regime is repeated. An outcome of this iteration is that repeated samples of cell temperature with time are stored and a profile built up which will eventually equate with the full charge profile (at step 800). An adjustment to the assumed charge state (i.e., 90% charged which is also known as profile) may be made to account for temperature. Whether full charge was reached or not, the current charge level, based on the charging which has occurred applied to the previously stored battery charge status, is displayed. At this point when the battery is fully charged (at step 805), the current shunting transistor is switched on so that only a trickle current remains at the cell terminals. (See *id.*, col. 10, lns. 1-27; and Fig. 8b).

Applicant's invention, as recited in independent claim 1, relates to battery charger configured to provide a temperature-regulated charging of a battery, which comprises the steps of, *inter alia*:

a processing arrangement operable to:

- (a) obtain a temperature data associated with the battery; and
- (b) apply a particular amount of a charge to the battery based on the temperature data of the battery, **wherein ... the battery [is maintained] at a predetermined threshold temperature during a time period in which the charge is applied to the battery.**

Independent claims 15 and 29 relate to method and storage medium, respectively, which recite similar subject matter.

It is respectfully asserted that in clear contrast to Applicant's claimed invention, the Farley Patent fails to teach, suggest or disclose the battery charger, method and storage medium in which **the battery is maintained at a predetermined threshold temperature during a time period in which the charge is applied to the battery**, as recited in independent claims 1, 5 and 29 of the above referenced application.

In the Office Action, the Examiner points to col. 19, lns. 35-50 and col. 16, lns. 44-56 of the Farley Patent as allegedly disclosing such temperature maintenance. These portions of the Farley Patent relied on by the Examiner only describe the use of a temperature sensor to detect the temperature (cell temperature – col. 10, lns. 1-27 or ambient temperature – col. 16, lns. 44-48). However, there is absolutely no teaching, suggestion or disclosure in the Farley Patent of *any maintenance of temperature of the battery, much less that such maintenance occurs during the time period in which the charge is applied to the battery*, as recited in these independent claims. Further, Applicant respectfully asserts that the Farley Patent does not describe any such temperature maintenance in any other portion thereof. The Podrazhansky Patent and the Yagi Patent do not cure at least these deficiencies of the Farley Patent, and the Examiner does not contend that they do.

Therefore, Applicant respectfully submits that the Farley Patent, taken alone or in combination with the Podrazhansky Patent or the Yagi Patent, fail to teach, suggest or disclose the subject matter recited in independent claims 1, 15 and 29. The claims which depend from these independent claims are also believed to be allowable over the Farley, Podrazhansky and Yagi

Patents for at least the same reasons as set forth herein above with respect to independent claims 1, 15 and 29.

In addition, regarding claims 9, 23, and 37, which depend from independent claims 1, 15 and 29, respectively, these dependent claims recite that **the particular amount of the charge supplied to the battery is regulated as a function of the temperature data**. As indicated above, the Farley Patent does not mention, much less teach, suggest or disclose that the amount is charge provided to the battery is regulated as a function of any temperature data. As described in col. 10, lines 1-27 and shown in Fig. 8b of the Farley Patent, a procedure determines the temperature of the cell, determines whether the cell temperature profile is conducive to the full charging, and if so, determines whether the static charge has reached the maximum amount. However, the Farley Patent does not at all indicate that the charge being provided to the cell can be regulated as a function of the temperature data, as recited in claims 9, 23 and 37. The Podrazhankzy Patent and the Yagi Patent do not cure at least this deficiency of the Farley Patent, and the Examiner does not contend that they do.

For claims 10, 24 and 38, these claims depend from claims 9, 23 and 37, respectively, and thus should be allowable for at least the same reasons as set forth herein above. In addition, claims 10, 24 and 38 recite that **the particular amount of the charge is regulated to be gradually increased and/or gradually reduced**. No such gradual increase or gradual deduction of the particular amount of the charge is taught, suggested or disclosed by any of the Farley, Podrazhankzy and Yagi Patents.

Concerning claims 12, 26 and 40, which depend from independent claims 1, 15 and 29, respectively, these dependent claims recite that **the amount of the charge provided to the**

battery is capable of being increased based on a change in the temperature data of the battery.

Again, an increase of the particular amount of the charge is not taught, suggested or disclosed by any of the Farley, Podrazhanzky and Yagi Patents.

Thus, for at least these reasons, the 35 U.S.C. §§ 102(b) rejection of independent claims 1, 15 and 29, and the §§ 102(b) and 103(a) rejections of the claims which depend there from should be withdrawn. In addition, it is believed that various claims which depend from independent claims 1, 15 and 29 are also allowable over the alleged combination of the Farley, Podrazhanzky and Yagi Patents for at least the same reasons, as well as contain separately patentable subject matter as set forth herein above.

V. CONCLUSION

In light of the foregoing, Applicant respectfully submits that pending claims 1-42 are in condition for allowance. Prompt consideration, reconsideration and allowance of the present application are therefore earnestly solicited.

Respectfully submitted,

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